

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date
11 March 2004 (11.03.2004)

PCT

(10) International Publication Number
WO 2004/020637 A1

(51) International Patent Classification⁷: C12N 15/53

(21) International Application Number:

PCT/AU2003/001111

(22) International Filing Date: 29 August 2003 (29.08.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
2002951088 30 August 2002 (30.08.2002) AU
2002952835 16 September 2002 (16.09.2002) AU

(71) Applicant (for all designated States except US): INTERNATIONAL FLOWER DEVELOPMENTS PTY. LTD. [AU/AU]; 16 Gipps Street, Collingwood, Victoria 3066 (AU).

(72) Inventors; and

(75) Inventors/Applicants (for US only): BRUGLIERA, Filippa [AU/AU]; 11 Kalimna Street, Preston, Victoria 3072 (AU). TANAKA, Yoshikazu [JP/JP]; 2-7-4 Ohginosato, Otsu, Shiga 520-0246 (JP). MASON, John [AU/AU]; 9/999 Rathdowne Street, Carlton North, Victoria 3054 (AU).

(74) Agents: HUGHES, E, John, L et al.; DAVIES COLLISON CAVE, 1 Little Collins Street, Melbourne, Victoria 3000 (AU).

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

WO 2004/020637 A1

(54) Title: FLAVANOID 3',5'HYDROXYLASE GENE SEQUENCES AND USES THEREFOR

(57) **Abstract:** The present invention relates generally to a genetic sequence encoding a polypeptide having flavonoid 3', 5'-hydroxylase (F3'5'H) activity and to the use of the genetic sequence and/or its corresponding polypeptide thereof *inter alia* to manipulate color in flowers or parts thereof or in other plant tissue. More particularly, the F3'5'H has the ability to modulate dihydrokaempferol (DHK) metabolism as well as the metabolism of other substrates such as dihydroquercetin (DHQ), naringenin and eriodictyol. Even more particularly, the present invention provides a genetic sequence encoding a polypeptide having F3'5'H activity when expressed in rose or gerbera or botanically related plants. The instant invention further relates to antisense and sense molecules or RNAi-inducing molecules corresponding to all or part of the subject genetic sequence or a transcript thereof. The present invention further relates to promoters which operate efficiently in plants such as rose, gerbera or botanically related plants.